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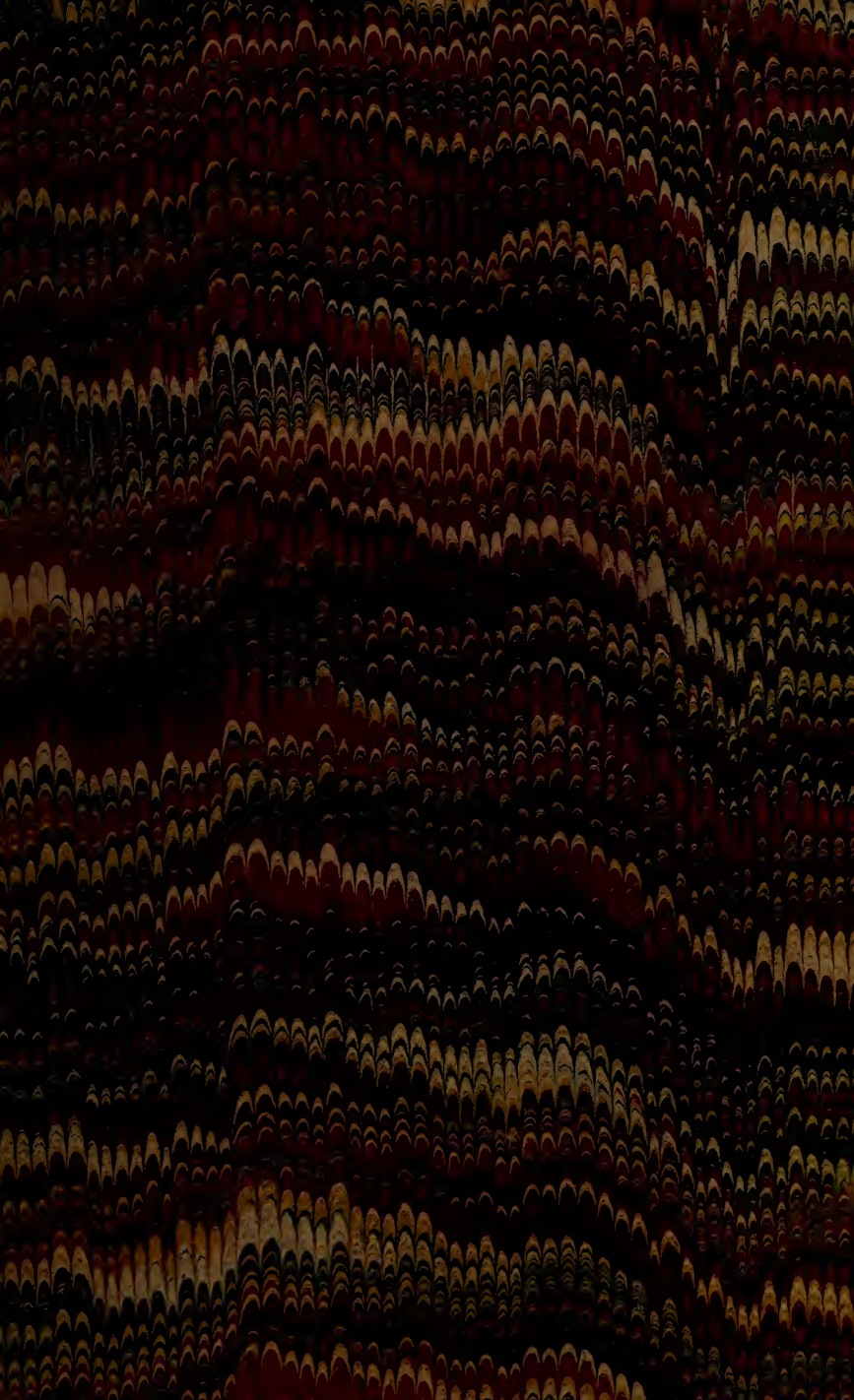

MATERIALISM:

Its History and Influence on Society.

BY

DR. L. BÜCHNER.

[illegible] AND SOUL," "MAN IN NATURE," ETC. [illegible]

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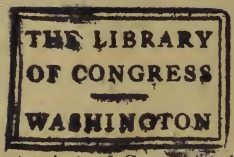

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MATERIALISM:

ITS HISTORY,

AND ITS

INFLUENCE UPON SOCIETY.

By DR. LOUIS BUECHNER.

While a great many are wont to consider that phase of philosophy which is most generally known under the name of *Materialism*, as quite new, Materialism can in fact be traced to the very beginning of philosophical speculation, and characterizes the very principles of the most ancient philosophical systems. There is no lack of well known and far spread religious systems in antiquity which, impossible as this may at first appear, are built upon an entirely materialistic basis. Thus Buddhism, founded 600 B. C. by the son of an Indian king, still continues its existence, though in a partially degenerated condition, and its followers far outnumber the believers in Christianity. This remarkable religious system is characterized by the entire absence of Gods, of religious rites and ceremonies, of prayers, of

priests, in short of any of the customary apparatus of other religions, and is exclusively founded upon moral discipline and ethics. Buddha's philosophy is essentially materialistic, inasmuch as it assumes as the first cause of all things the celebrated *Prakriti*, that is to say original nature, one and indestructible, in which the two antagonistic forces of rest and activity have their being. The latter of these gives then the impulse for the origin of the world, and this origin itself is described as a continually repeated destruction and metamorphosis of that which exists—a principle of speculation entirely materialistic. Nor is the immortality of the soul admitted by Buddhism; since it finds the highest aim of man in the celebrated "Nirvána", that is, in his entering a state of non-existence. For by attaining to this "Nirvána" man is redeemed of the four principal evils with which he is afflicted: *birth*, *old age*, *disease* and *death*, while at the same time escaping the tortures of the so-called "regeneration", which, as is well known, plays so prominent a part in Indian religion.

Not only in Buddhism, however, but in all the mythical traditions of the Indians we find, more or less, the fundamental idea of original matter, one and undivided, and animated by an original force, immanent in and inherent with it, or of an original chaos, in which creative force is gradually developed. Only at a later period this materialistic idea of creative force gave rise to the idea of a creator and preserver of the world, outside of matter.

In a similar manner the two principal deities of the Zoroastrian or Persian religion, Ormuzd and Ahriman, of which the former represents the principle of light and purity, the latter the opposing evil principle, have like-

wise sprung from chaos, that is to say, from original matter and original force as inherent with it.

The principle of Materialism appears most plainly however in the oldest religious system of the Chinese—as traceable to Confucius — a nation which is well known from the most ancient times until the present day to have excelled in intelligence and good common sense. There we find two original causes of existence assigned, which represent the ideas of original force and matter. They also symbolize the ideas of heaven and earth, which penetrate each other and thus produce those five elements, from which spring all other things by gradual development. Man is the acme of these five elements, and in him for the first time conscious will and intellect are manifested, while the deity or heaven is eternally unconscious nature. But as man has sprung from nature, he can have no other being than nature, and as there is no force without matter, and no soul without body, the personal mind of man returns after death again into the universal original force, that is to say, there is no personal immortality. In his system of ethics Confucius essentially agrees with the materialists of our present time, and the doctrine, so often wrongly claimed as specifically Christian: "Do unto others as you would have others do to you", is found almost in these very words in the moral code left many centuries before the origin of Christianity by the founder of Chinese religion.

Even the most ancient among the civilized nations of antiquity, the Egyptians, seem to have built their religion and philosophy originally upon materialistic foundations. At least Prof. Roth relates in his history of occidental philosophy, that the idea of a creation of the world from nothing, which as is well known has found

its highest development in Judaism and Christianity, was in the eyes of the Egyptians a nonentity or an absurdity. He also tells us that they distinguished four fundamental beings, whose mutual union only had resulted in a first or original deity, namely, *matter*, *mind*, *space* and *time*, among which matter seems to have played the most prominent part. At least it also bears in its quality as original matter the name of "the great mother," and is described as infinite and invested with force. Inasmuch as it is conceived as a person and raised to the dignity of a deity, it is also called "*Neith*," and bears on the celebrated "Neith pictures" at Sais the inscription: "I am everything that was, is and will be." From this original matter which existed from the beginning, everything else springs forth: the worlds, the gods, the earth, and so forth.

If, as we have seen, these ancient ideas resemble the Materialism of our days so much that they seem almost identical with it, this is still more the case with regard to the philosophical systems of antiquity. Philosophical speculation appears for the first time in systematic form among that magnificent nation, the Greeks, among whom we meet during the great period preceding the time of Socrates, a long series of remarkable thinkers or philosophers, who are generally considered as marking the very beginning of philosophy in man's history. These are the renowned Grecian *Cosmologists* whose existence extends over nearly a century and a half, covering as it does the period from the beginning of the sixth century B. C. until the time of Socrates, or 460 B. C. All these philosophers are monists or philosophers of unity, that is, they do not know that dualism which so strikingly characterizes subsequent phases of philosophical thought

by the contrast and antagonism which they establish between world and God, mind and matter, body and soul. They all lay down theories of the origin of the world, but exclusively upon the ground of physico-material causes. They all assume a single original matter from which everything has sprung, and they all approach in their general views the principles of modern natural science so nearly as to excite our highest surprise. Finally they all were not only speculative philosophers, but naturalists, as far as this term is applicable to those times.

The first of these philosophers was *Thales*, who lived about 635 B. C. and is generally considered as the founder of all philosophy. The substance of his knowledge he had brought from Egypt. He explained the inundations of th Nile from natural causes, measured the pyramids by their shadows, and was able to predict to the astonished Ionians the exact time of a solar eclipse. He also knew the moon to derive her light from the sun, declared the shape of the earth to be that of a globe (which correct view was afterwards abandoned) and expressed pretty correct opinions regarding the nature of stars. He considered *water* as the original matter from which all things have sprung.

The path so successfully opened by Thales was now followed up by quite a number of his countrymen. First *Anaximander* (about 610 B. C.) who drew up the first maps of the earth as then known, and who is really to be considered as the first decided materialist, since he replaces the water to which Thales had given the preference, by the pure, unlimited and indestructible original matter, which according to him bears the force of motion and evolution in itself and calls forth all phenomena of

the world by means of condensation and attenuation. He was followed by *Anaximenes* who rejected his predecessor's "original matter" as of too indefinite a nature and substituted for it the air; and afterwards by the school of *Pythagoras*, who died about 540 B. C. He maintains, no doubt in adaptation to Egyptian ideas, a quaternity of *original mind*, *original matter*, *original space* and *original time*, and declares the universe as eternal and infinite. When Pythagoras, who was also an excellent mathematician, discovered the celebrated theorem which still bears his name, he expressed his joy by an hecatomb, that is to say by sacrificing in honor of the gods a hundred steers. "Since that time" wittily says our great German humorist, Boerne, when referring to this fact, "All oxen bellow as often as a new truth is discovered."

Pythagoras was followed by the *Eleatic school*, so-called, which flourished about 400 B. C. Their celebrated founder *Xenophanes* of Colophon, in Asia Minor, exposed the mythology of his countrymen to pitiless ridicule and was at the same time the first one who recognized the petrefactions found in the earth as what they really are—relics of formerly living beings.

Xenophanes was succeeded by his pupil *Heraclitus*, surnamed "the obscure one," who lived about 500 B. C. and added to the elements of water, matter and air, acknowledged up to that time, fire as a fourth one. "The universe, the same for all," says he, "has been made neither by one of the gods nor of men, but it has been, and is, and will be an eternally living fire, glowing and cooling in definite measures, a game that Jove is playing with himself."

He laid so great stress upon the vanity of all earthly things, that he has thereby secured also the sur name of the "weeping" philosopher.

After Heraclitus comes *Empedocles*, about 450 B. C., who is now generally considered as the originator of Darwin's theory of evolution, because he first pronounced the fundamental idea underlying that theory, by designating all those beings which now exist, as mere relics of infinitely numerous beginnings and as the result of a gradual evolution from the less to the more perfect. The world itself he declared as eternal and uncreated, adding to the three elements ef water, air and fire, the fourth element of earth. This then was the origin of the four elements of Aristotle, which indeed, no longer back than twenty or thirty years ago, were still taught in our schools as the basis of natural science, although Aristotle himself is entirely innocent of them. He only accepted them into his system of philosophy, adding to them as a fifth element the celebrated "*Essentia quinta*" or quintessence as the cause of the spiritual.

Of greater importance, however, than all the previously mentioned philosophers, are the celebrated *Atomists* of the period preceding Socrates, because their remarkable theory of atoms most nearly approaches modern natural science, which is indeed likewise entirely built upon the atomic theory. Their founder is *Leucippus*, the first out-spoken teacher of atheism in the sense of a philosophical system. His pupil *Democritus*, however, became much more celebrated and important. He was born 450 B. C. in one of the Ionian colonies. For the purpose of explaining the origin of the world, he laid down a

complete theory of atoms, which differs from the modern atomic theory only in this, that Democritus (as could not well be expected otherwise at his time) imagines the atoms as far too great, by comparing them to the motes in a sunbeam, while we now know, that such a mote itself consists of innumerable atoms or smallest particles which we consider as no further divisible. From these atoms and their mutual penetration and intermixture, Democritus derives every existing thing, both physical and intellectual, which likewise excludes the idea of a personal immortality of the soul. Only virtue is necessary for happiness, and the greatest happiness which is attainable for man, consists in a quiet life free from care. The doctrine of teleology, which argues for the existence of a deity from the marks of design apparent in the universe, as implying an intelligent creator, is rejected by Democritus. For this reason his philosophy has been subject to the same objections as modern materialism, as if it founded everything upon chance, while in fact according to his true meaning everything is subject to law and order.

No doubt the doctrine of Democritus contains the most fully developed materialism of antiquity, and was recognized and acknowledged as such at that time, sharing in the same violent attacks with modern materialism, especially on the part of Aristotle, and drawing in later years all possible, though groundless, calumniations upon Democritus and his School.

These were followed by the *Sophists*, so-called, who likewise, though to a less extent, inclined towards materialism and atheism, and who in their turn were followed by *Socrates*, *Plato* and *Aristotle*, the celebrated repre-

sentatives of the *idealistic* period of philosophy, during which for a hundred years materialism stepped into the background, until it was again brought to light by its most talented and renowned exponent, *Epicurus*. Epicurus was born 342 B. C. and reached the high old age of 72 years, after having written, as is asserted, not less than three hundred works, most of which however are lost. The principal source for the study of his doctrine is found in the celebrated poem of Lucretius Larus, a very well known and highly esteemed Roman author, who lived between the years 95 and 52 B. C. His poem was entitled: "*de rerum natura*" ("on the nature of things") and is even to day well worthy of being read. A short exposition of the doctrines contained therein may be found in the fifth of my lectures on Darwin. I must here confine myself to the statement that Epicurus and his follower Lucretius exerted a very significant intellectual influence upon the Roman world of their times, as indeed the Romans had adopted in all only two philosophical systems from the Greeks, namely the *Stoic* and the *Epicurean* system. Epicurean philosophy reached its climax during the glorious reign of Cæsar Augustus, when it numbered many of the most prominent thinkers among its adherents.

Epicurus is also the author of that truly philosophical saying: "Death does not concern us. For where *we* are, death is not; and where *death* is, there *we* are not". Epicurus brings the history of ancient materialism to a close, which now for fifteen centuries or more passes almost entirely into oblivion through the overwhelming and unexampled influence of Christianity. Only timidly and under-deceptive disguises materialism dared, after the expiration of this time, to show

itself again in a few philosophial thinkers of the middle ages, such as *Petrus Pomponatius*, *Giordano Bruno*, *Gassendi* and others, some of whom had to atone for their doctrines on the funeral pyre. The English materialist, *Hobbes*, born in 1588, fared better, succeeding in escaping by flight from English Puritanism. He very strikingly compares religion with *pills*, which must be swallowed whole, without chewing. With a similar import, only more wittily, our German philosopher *Schopenhauer* says: "Religions are like fireflies; they require darkness in order to shine".

The great philosopher, *John Locke*, born in 1652, in England, who so efficiently prepared the way for materialism and sensualism, was likewise compelled for many years to live in exile. He is the originator, or at least the chief representative, of that celebrated axiom: "*nihil est in intellectu, quod non ante fuerit in sensu*" (there is nothing in our intellect that has not previously been in our senses). The same fate was shared by the English materialist *Toland*, who in his celebrated letters to the philosophical queen, Charlotte of Prussia, (1708) on the essence of the soul, had advanced entirely materialistic views, supported by the relation between force and matter.

But modern materialism found its most decided expression in France about the middle and during the second half of the last century through the celebrated *Encyclopedists* and *Baron D. Holbach's* well known "*Systeme de la nature.*" Here too I have to refer concerning further details to my fore-mentioned book (lectures on Darwin) and can here only state, that this materialism of the 18th century found its outward expression

or its embodiment, so to say, in the great French Revolution which is known to have so greatly contributed towards the deliverance of the mind from the thraldom of ancient superstition. But the suppression of the revolution coincided with the disappearance of materialistic philosophy, which then for another half century yielded to idealistic, self-sufficient, philosophical speculation. This speculation, as is well known, celebrated its greatest triumphs in the old home of philosophy, in Germany, and attained to so powerful an influence as to control for a long time not only science, but practical life, by usurping for itself a claim to the faculty of fathoming in a merely speculative way not only all secrets of nature, but of history, politics and so forth. But this presumptuous venture met with a striking defeat; and from the ruins of this speculative philosophy again arose materialism, so much cried down and yet always reawakening to more vigorous and beautiful life, like a phœnix rising from its ashes, though this time in a form very different from that it had previously borne, and equipped with other and better weapons than ever before. For while the materialism of former years and centuries had in the main been nothing more than the result of speculative thought, though founded, as much as possible, upon objective reality: the materialism of our day rests upon an entirely different and far more solid basis, aided as it is by the results of natural science, coming to its assistance from all directions, and in a manner, which even twenty or twenty-five years ago the boldest imagination could not have dared to dream of. As we all know, the natural sciences have just during the present century taken vast and unexampled strides in advance, and within a period of about three or four decades a se-

ries of the grandest discoveries have been brought to light, any one of which would have been sufficient in former times to shed an inextinguishable lustre of glory and renown upon a whole century, while most of these recent discoveries and even the most important ones are crowded within the narrow space of the last two decades.

When about eighteen years ago I wrote my book "Force and Matter," which afterwards enjoyed so great popularity, and in which I attempted to transform our own philosophico-theological system of cosmology upon the ground of modern natural science, I had, to be sure, quite a series of scientific facts at my service for the support of my theory, of which I endeavored to make the best possible use. But these facts were for the most part very imperfectly arranged, and exhibited on the other hand very many gaps which I had to fill as well as possible by speculation and hypothesis, relying on the subsequent confirmation of these hypotheses by the results of scientific investigation, and encouraged by the poet's well known saying:

"Great destinies are always preceded by their spirits!"

And this expectation has indeed within the shortest time been realized in a manner which I should never have dared to anticipate, and which I will try to illustrate in detail, though necessarily as briefly as possible.

In my philosophy I laid the principal stress upon the so-called constancy or immortality of matter, which has, ever since the beginning of this century, been one of the most firmly established facts of natural science, especially of chemistry. This constancy or indestructibility of matter was, as above stated, long ago known in a philosophical sense, and served to all materialists so-called as a basis for their speculations, since they could

not fail to acknowledge matter as the only thing of constant duration in the continuous flight of phenomena. But it was only a general, indefinite philosophical abstraction, which met with decided opposition on the part of their philosophical antagonists. Such opposition is in our days absolutely impossible, since the indestructibility and unity of matter is no longer a mere philosophical hypothesis, but a fact established beyond any possibility of denial or doubt, by the most accurate chemical investigation. From every combination, however heterogeneous, we see those smallest particles or atoms, so-called, of which we now-adays conceive all matter to be composed in endless and innumerable relations, at its disintegration appear in the same quantities and endowed with the same qualities or forces. In other words: these atoms are absolutely indestructible entities and entirely unchangeable in themselves. Only the differences in their mutual combinations produce the difference of phenomena. "An atom of iron," says Dubois Raymond, "remains at all events the same thing, no matter whether it thunders along the railroad track in the wheel of the locomotive, or whether it flies through the air in a meteor, or whether it courses in a blood-cell through the temporal vein of a poet."

With this positive proof of the indestructibility of atoms or the immortality of matter the work however was only half accomplished. A few years after the publication of my book this indestructibility found its necessary complement by the establishment of the same principle with regard to *force*, by which it was proved beyond doubt that as little as an atom of matter can anew come into, or disappear from existence, so little can even the least amount of force pass out of or come into

existence, but that all forces in heaven and on earth have their source in a vast supply of force never changing as to its aggregate amount.

In the same manner science furnished the proof that all the forces known to us can be changed or converted into each other without the loss of the least effect. Not less plainly has it been proven that forces are and cannot be anything but properties or motions of matter, and that any force without matter is as impossible or inconceivable, as matter without force or properties. I had then further, in accordance with the materialistic theory, laid down the assertion, that all matter and force in the whole universe, as far as it is visible or accessible to our investigations, is absolutely identical. I supported at that time these bold assertions not only by theoretical reasons, but by the results of the chemical and crystalline analysis of meteors, as well as by the phenomona of light, heat and gravitation. But since that time my assertions have received a striking and most direct confirmation by the recent discovery of *Spectrum Analysis*, made only a few years ago, which latest method of investigation enables us to prove with incontrovertible certainty the existence in the sun and all the other heavenly bodies accessible to our observation, even the most remote, of the very same matter and consequently the very same forces which are found upon our earth. And although perhaps certain kinds or groups of matter are peculiar to some heavenly bodies, yet it is now at any rate positively proved, that, (to use the words of Prof. Kirchhoff, the famous discoverer of Spectrum Analysis) "matters and forces in the whole universe are essentially identical."

The same method of Spectrum Analysis has likewise

led to the discovery that the *nebulæ* so-called, which were formerly believed to consist of clusters or groups of stars, but which on account of their great distance could not be resolved by the telescope into single stars, are in part *actual* nebulae, that is, solar and planetary systems in the course of formation, which offer to us a distinct and unmistakable illustration of the former developement of our own planetary system. This also confirms the hypothesis I advanced in my book in the chapter, "the heaven," regarding the origin and gradual developement of our solar system from natural causes. But far more important than all this are the confirmations given to the materialistic theory since its reawakening by the investigations regarding the origin of the organic world. When in 1855 I wrote my two chapters on "periods of creation" and "*generatio equivoca*," I was still opposed by almost the whole scientific world and had to rely not so much upon real facts, as upon the argument drawn from the impossibility of any other process, and upon the general threefold parallelism of palaeontology, comparative anatomy and the history of evolution. I always had before my mind's eye the so-called *unity of nature* and the logical necessity of a *natural* process. But what I then wrote more under the impulse of presentiment and groping, as it were, for the truth, has since received the most complete confirmation in every direction by the almost universal readaptation of the *theory of evolution*, so-called, within the organic natural sciences. This theory which explains the gradual origin of the organic species of plants and animals from the simplest beginnings through vast periods and innumerable generations in a natural manner and without the aid of any extramundane creative agency,

has now become an almost universally admitted tenet of scientists, supported as it is by innumerable well established facts. At the same time the *cellular theory*, which proves the entire organic world to be developed from, and to consist of a single primitive element, the cell, was developed by Virchow and others in such a manner as to remove forever any opposition to the universal recognition of the *unity* of organic nature, by proving its validity for the *animal* world not less than for the *vegetable* world, to which it had hitherto been limited. Finally the difficult problem of "*generatio equivoca*" or the origin of the first organic element which had caused so much trouble to scholars, and which for a long time seemed to mock every attempt at solution, was successfully solved by the discovery of those simplest primitive forms, designated by Professor Haeckel with the name of "*moneren*," and which covered the bottom of the primitive seas in the same manner as they even to-day cover the lowest depths of the ocean.

As is well known, the theory of evolution has been again restored and brought to honor by the distinguished English scholar *Charles Darwin*, to whom materialistic philosophy owes a great debt of gratitude—a gratitude which appears so much the more deserved, if we consider what Darwin has done by his investigations for the refutation of Teleology and its perilous influence, which, as may be easily inferred, stood in an irreconcilable antagonism to Materialism. When I first wrote my chapter on Teleology, I could likewise appeal only to general reasons and oppose to the many marks of design in nature, claimed by Teleologists as a proof of an intelligent creator, as many examples of the want of design.

But as regards the manner in which those marks of design had originated, I could venture only general and indefinite suppositions and represent them as the general result of innumerable processes of evolution. But I was unable to trace their connection in detail, since those processes of evolution themselves were not known in detail. Darwin, however, has changed this in favor of the materialistic theory by furnishing so convincing proofs for the natural or accidental causes of these marks of design in nature, that now-a-days no well-educated person can speak any longer of design in nature as the consequence of intentional or preconceived calculations.

In necessary connection with the theory of evolution also the natural or animal origin of our own race, or of man upon earth, has been discovered and proved as far as it is possible with the resources now within the reach of science. As is self-evident, the natural origin of man is an indispensable requisite for materialistic philosophy. But this important problem was before Darwin's time wrapt in such impenetrable darkness, that at the time when I wrote my book, it required a great deal of courage to frankly and openly declare it, and I was prepared for every kind of scorn and opposition. Both have indeed been my lot; but this has changed, for within a comparatively short time the animal origin of man has become an almost universally admitted fact of science. Such an origin is of course possible or conceivable only, if man's actual existence upon earth dates so far back as to exclude it from any comparison with historical traditions. But of so long an existence of the human race upon earth, science, at that time, neither knew nor anticipated anything, and it was considered an established fact, that there were no fossil or petrified remains of man,

and that our race could not have made its appearance on earth before the time of the Alluvium. But a few years were sufficient to overthrow this prejudice and to furnish numerous positive proofs to the contrary. It is now considered beyond any doubt, that man existed not only at the time of the *Deluvium*, but even during the latter part of the great tertiary epoch, nay, perhaps even at an earlier period, and that his existence extended through extraordinarily long periods not at all to be compared with historical traditions. At the same time remains of human skulls have been found from most ancient times, which give incontrovertible evidence of a very low physical and intellectual development of primitive man, while, on the other hand, species of monkeys resembling man have been discovered and examined, that were entirely unknown to former times, as for instance the *Gorilla*. All this raises the fact almost beyond doubt, that man was not, in accordance with biblical tradition, the product of a divine act of creation, but, like all other organic beings, a child of nature, and the result of gradual development. I must not neglect to mention, that with regard to this matter also, the remarkable disclosures of the *history of generation and development*, likewise rather a recent branch of organic natural science, have during the short time of its existence, furnished most essential aid to materialistic philosophy.

Better than with regard to the problems mentioned thus far, I was supported by a series of facts concerning the question of man's intellectual being or soul, which up to the reawakening of the materialistic doctrine was generally considered as having a separate existence of its own, more or less independent of nature. But even these facts lacked at that time all inner, logical connec-

tion, and the most prominent physiologists were wont to express it as their opinion, that from a physiological point of view nothing definite could be established regarding the essence of the human soul, and that the connection between body and soul, or between brain and mind seemed to be more accidental than essential and necessary. Only the celebrated naturalist, *Karl Vogt*, had already then, in his physiological letters, expressed, in a rather strong manner, to be sure, materialistic views regarding the relation of brain and soul, but not without calling forth from all sides the most violent attacks upon himself.

Since that time, however, the physiology of the brain has made such rapid strides in advance, that here too the materialistic standpoint appears as the only tenable one in a scientific sense. What is called man's soul or mind, is now almost universally considered as equivalent to a function of the substance of the brain, and although the real insight into the physical nature of mental processes is still wanting, yet materialism has also in this direction won a more decided victory than can be imagined. For just the properties of the human mind and the impossibility of explaining them, were from the most ancient times one of the main supports of spiritualism and theological systems. True, their explanation is still wanting; but the fact that brain and mental activity are as inseparably united as force and matter, does not on that account become any the less certain; and even that inexplicability will gradually yield, in proportion as the physiology of brain and nervous system will be better understood. In all probability the nature of our mental mechanism will finally be found to be far more simple

and easier to be understood than is at present thought or anticipated.

Matter however does not possess only *mechanical*, *chemical*, *electric* and other forces, but also *mental* forces which are manifested under similar conditions as those found in the brain of man and animals. At the same time a deeper insight into the nature of animals, attained by more accurate observations, has enabled us to cast glances into the depths of the animal soul, which formerly were considered impossible, and which give another proof in this direction of the connection which materialistic philosophy postulates between man and the rest of the organic world. In consequence of this circumstance we shall most probably before long see the discipline of comparative physiology added to that of comparative anatomy, which we already possess. It will be much easier for such an *animal physiology*, as well as for physiology in general, than it was in 1855, to emancipate itself entirely and forever from those *innate ideas* and *instincts* which played so prominent a part in former physiology and philosophy, and which were always considered an incontrovertible evidence of man's dependence upon a higher power or intelligence, by whom those ideas and instincts were assumed to have been designedly implanted into human and animal souls for our and their benefit. It was extremely difficult to invalidate this assumption, as long as the element of *hereditary transmission*, which was almost entirely unknown before Darwin, could not be applied in explanation. But now the case stands very differently, and if we discover any thing in the mental life of man or animal, which cannot be explained by education, experience,

instruction, example etc., we may be sure that it is traceable to hereditary transmission. For such hereditary transmission is known not to be confined to physical properties, but to include mental properties as well, and it seems even to a greater extent. Especially the ideas of *time*, *space* and *causality*, which even at present are considered by many philosophers as normal forms of thought innate in our mind, and whose existence is explained "a priori," that is, as preceding all experience and independent from it, are not originally implanted into our mind, but are the result of a gradually inherited disposition or habit of our mind to manifest its activity in accordance with those ideas that had their first origin in experience. Thus the materialistic doctrine has also in this direction received the fullest confirmation by the progress of science.

In conclusion we have still to speak of that renowned or rather ill-reputed *vital force*, without which it was formerly thought the phenomena of life could in no way be explained, and the existence of which I most emphatically opposed in the first edition of my book, since I considered it impossible from the modern or materialistic standpoint, that those minutest particles of matter or atoms could ever assume any other properties or forces than those which are originally inherent in them, no matter into what conditions or relations they may be brought. I had at that time to contend against so celebrated a man as Justus von Liebig, and to endure his calling me an amateur, promenading along the borders of natural science, while in our days chemistry in unison with physiology has taken such progressive strides as to entirely obliterate that artificial discrimination which in former times had prevailed between organic and in-

organic chemistry, and to cause it to be considered only as a conventional or external one.

This synopsis completes the outline of the confirmations which the doctrine of Materialism has received through the progress of the positive sciences. Everyone admits, that, considering the short time of eighteen years during which they have come to light, these confirmations were more numerous and of greater importance than would have been expected even by the boldest imagination, and that no other philosophical doctrine known thus far has ever enjoyed similar success. To this must be added that even the derogatory criticism which I pronounced in the sense of materialistic philosophy regarding the speculative philosophy of the past, has found its full confirmation in the course of time. This is so much the more remarkable as at that time the speculative systems and the speculative methods were still enjoying in Germany, the real home of philosophy, a very high reputation, so that no intellectual life was thought possible without them. But nevertheless speculative philosophy has even within this short time lost nearly all of its credit—so overwhelmingly strong is the weight and pressure of facts if they are once recognized as such and brought into correct philosophical connection with one another. If, as *Gruppe* says with so striking correctness, the history of philosophy was hitherto nothing but the history of error lighted up by some isolated flashes of truth, then we may hope that the philosophy of Materialism in its future developement will put an end to this deplorable condition, by settling the everlasting discussions of philosophical schools and systems, and by raising for the first time in man's history Philosophy to the rank of a real science. All previous philosophical systems,

with the exception of Materialism, have thus far been more or less *idealistic* and *dualistic*, that is to say they have established a definite distinction or separation between matter and force, matter and form, nature and mind, world and God, body and soul, earth and heaven, death and life, time and eternity. Nay, they have, as a rule, treated all these ideas as really antagonistic. Materialistic philosophy, on the contrary, supported by facts, has for the first time proved, that such antagonism indeed does not exist, and that we are able *only in our thoughts* to maintain a separation of those ideas. But in consequence of such separation they immediately become empty abstractions, while life and existence are possible and conceivable only under the presupposition of their fullest unity or identity. There is no matter without force, as little as there is any force without matter; there is no form, no life, no motion without material existence, nor is there any material existence without those properties. There is no nature without order, but just as little is there order without nature. There is no body without soul any more than there is any soul without body. There is no earth without heaven, nor heaven without earth. There is no time without eternity, nor is there any eternity without time. There is nothing finite without anything infinite, but as little is there anything infinite without anything finite. Or as our great poet Goethe says, "Nature is neither kernel nor shell; she is everything at once."

That *dualism* which hitherto has characterized all philosophy has now yielded to *unity*, and he who knows and appreciates the great and unquenchable desire of the human mind for unity and a cosmology founded upon it, cannot otherwise than hail such a result with greatest

joy. All those tormenting and agonizing doubts and uncertainties with which the dualistic cosmology of the past terrified Man's mind, are at once removed by it, and if mankind hitherto has been hovering, so to say, between heaven and earth, God and the world, without being able to attain any inner or outward rest, this relation is now completely changed. To any one who does not stubbornly and obstinately cling to old prejudices, this new cosmology which has superseded the dualism of former systems of philosophy and thought, must appear as clear, simple, free of dualism, easily intelligible and perfectly satisfactory. On account of this very antagonism to the dualistic character of the speculative philosophy of the past I should like best to designate the philosophy of Materialism as *monistic philosophy* or *philosophy of unity*, and the cosmology founded upon it as *monism*, in accordance with the suggestion of Prof. *Haeckel*. But I have retained the names of Materialism and materialistic philosophy, in order not to be misunderstood, hoping that by and by the better appreciation of this philosophy will make it possible to replace those names by more appropriate ones. The name Materialism is very apt to call forth wrong conceptions, as it suggests only the idea of matter in the sense in which it has prevailed for so long a time, namely as something dead, inert, gloomy, immovable, opposed and even hostile to mind. But in reality matter, as conceived in the light of modern Materialism, exhibits just the opposite characteristics. Especially since the indestructibility of matter, as previously described, has found its necessary complement in the indestructibility of force, and since the separation of force and matter has been recognized as a mere abstraction and existing only in our thoughts: it is

really impossible to speak any longer of Materialism as a system which derives everything from matter only. Otherwise we might just as well speak of *Dynamism*, that is of a system that derives everything from force (dynamis.) But in reality both are identical and inseparable, and therefore a philosophy built upon those ideas cannot be better designated than as *monistic* or a *philosophy of unity*. Sometimes I have also called my philosophy a *realistic* one, in order to intimate, that contrary to the speculative systems of the past it seeks its support in the facts of reality. But it will be understood that this refers more to the method or manner of reasoning than to the system itself. Moreover, I should not even like to call our monistic philosophy a *system*, since this word always suggests the idea of something finished, concluded, permanently established, while the realistic philosophy can and must change constantly in accordance with the changing progress of science and the better insight into facts. For that same reason I should raise my voice of warning against any attempt to have this new philosophy made a *new idol* to take the place of the *old* one it has superseded, for it would then run the danger of being overthrown in its turn by a younger one that might succeed it. Only the monistic *principle*, or the principle of unity, ought to be firmly adhered to—all the rest ought for the present to be only provisionally accepted as truth, and to be held as such only as long as progressing science does not teach anything different and better.

In conclusion I should like to protest against the usual misconception which is wont to consider *Materialism* and *Idealism* as antagonistic in principle and opposed to each other. Most persons think that the adoption of

Materialism involves the disappearance of all high and noble aspirations from the world, the abolition of art and poetry and the degeneration of man to a low standard of sensualism. But this opinion is so thoroughly erroneous, that according to my conception the very contrary is true, and that, as far as the sensualistic tendency of Materialism is concerned, it is founded upon the confounding of *Scientific Materialism* with the *Materialism of life*. The former is so little antagonistic to *Idealism*, that it rather furnishes the true basis for it. The sole difference between this only true Idealism and that of the past is this, that the latter aimed at unattainable ends, while Idealism in the sense of my philosophy aspires after attainable ends and brings the whole power of idealistic aspiration to bear upon actual life. For it is self-evident that the more we abandon all those ideals which lie outside of us and our natural existence (such as the hope for individual life after death, or the existence of a supreme being who directs our destinies by his providence, &c.) the more our whole attention is directed to the heaven in our own heart. We shall then no longer sacrifice our earthly enjoyment and happiness to transcendental hopes, and shall endeavor to find upon this earth the heaven that we have lost by giving up our old faith. We shall therefore appreciate this actual life more highly than hitherto, and shall endeavor to make it already upon the earth as ideal, that is, as beautiful and perfect as possible. Art and poetry will not suffer from such a change, but on the contrary thrive so much the more vigorously, though not in the form of the Romanticism or nebulous Sentimentalism of the past, but as the expression of sentiments and ideas grown up from actual life itself. The greatest of all poets who has ever lived and

whose masterpieces are immortal, because he stood upon this ground of truth and reality, *Shakespeare*, was already a Materialist in his innermost convictions, and with his prophetic eye pursued the eternal wanderings of matter as the last and primitive cause of everything that exists, through the same pathways, upon which modern science has traced it with mathematical certainty, when he says : (Hamlet, v. 1.)

> " Imperious Cæsar, dead and turned to clay,
> Might stop a hole to keep the wind away ;
> O that the earth that kept the world in awe,
> Should patch a wall to expel the winter's flaw ! "

What now concerns in conclusion the influence of materialism upon society, will easily be established from what has been said before. This influence can be only a beneficent one ; for in the *first* place it must give to every individual a previously unknown peace and cheerfulness of mind by delivering him from those agonizing doubts and fears to which the systems of the past subjected him ; while in the *second* place it directs the attention of every individual and consequently of society to what is *real* and *practical*, or in a word, to life itself, and compels him to seek the ideals which formerly appeared to his vision only in the distance, in his immediate proximity. But while doing this, he is manifestly obliged to regulate his own life, as well as the life of his race, as beautifully, agreeably and carefully as possible.

From this general point of view, I think, we must appreciate the influence of materialism upon the society of the future. But this view, in order to become fruitful, must of course be applied in detail to every single problem that may arise in society, and it must be shown, how the demands raised from all sides for a reform of society are to be complied with from the standpoint of mate-

rialistic philosophy. I have undertaken this no doubt very difficult task of carrying out such a criticism in detail and of giving account of the result of my efforts in the third part of my recent book on "*Man and his position in nature*," to which I therefore direct the attention of those who have derived from the perusal of the preceeding pages, sufficient interest for these details, since I must forbear from entering into them here. A careful perusal of this book will, I trust, convince the reader that all the demands of materialistic philosophy with regard to life and the regulation of society in the future can be condensed into the few words with which I conclude that exposition, and with which I conclude this essay:

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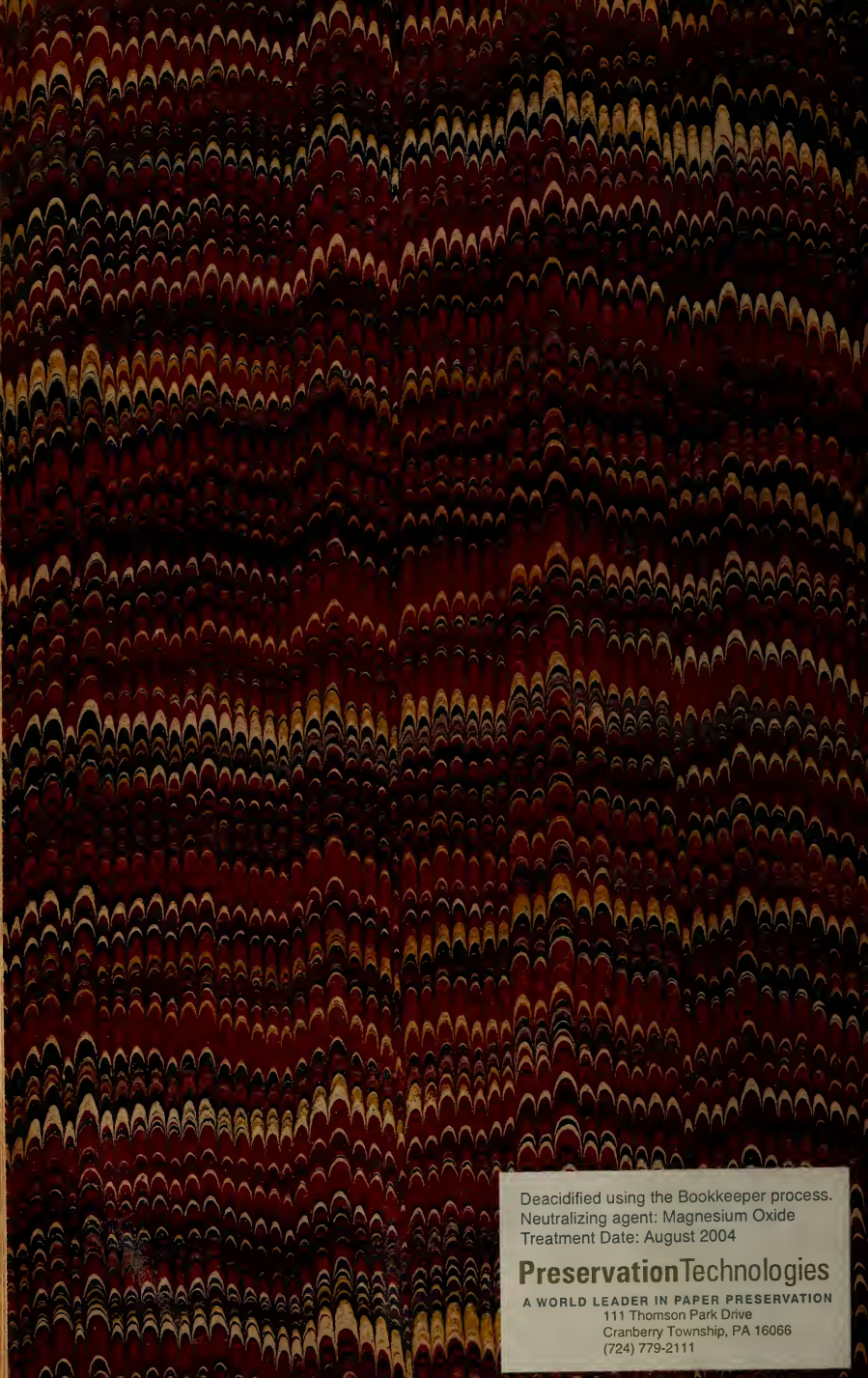

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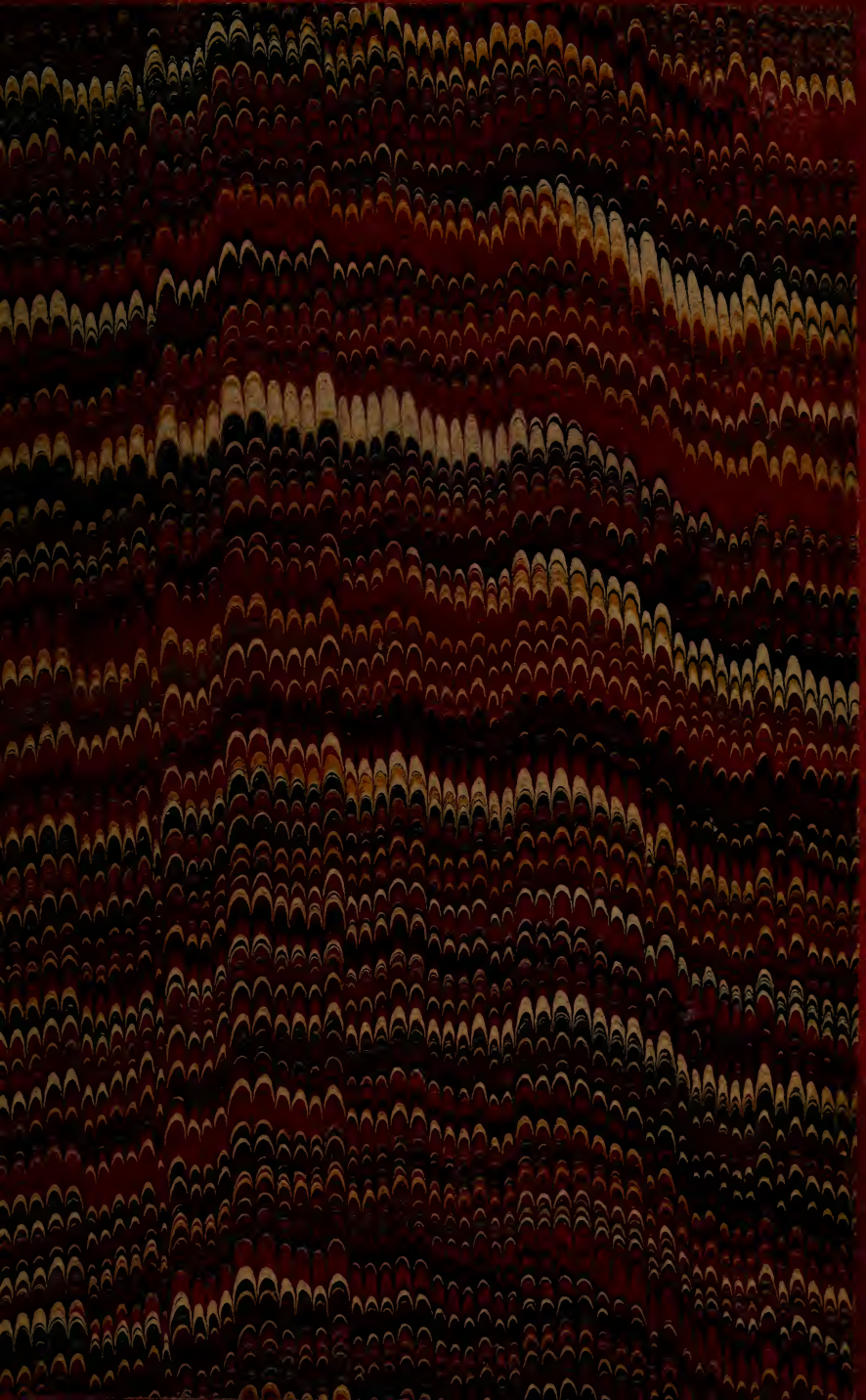

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